

**REMARKS**

Applicants submit the following amendments and remarks in response to the Office Action mailed September 24, 2007. A Petition for a Two-Month Extension of Time extending the time for responding to the Office Action from December 24, 2007 to and including February 24, 2008 is submitted herewith.

The above-noted revisions to paragraph [0001] of the specification are respectfully submitted to list the proper priority.

Claims 21-30 and 41-47 were rejected in the Action. Claims 42 and 44-46 have been canceled herein. No claims have been added. Therefore, claims 21-30, 41, 43, and 47 remain pending in the present application. Applicants set forth remarks relating to the Action below.

The Examiner objected to the specification under MPEP § 608.01(o) as failing to provide proper antecedent basis for the claimed subject matter. The Examiner asserted that the limitation that only the perimeter of the wire mesh is disposed in the groove such that only the perimeter is in contact with a coating was not described in the written disclosure. The Examiner contended that paragraphs [0180] and [0181] of the specification disclose that the coating is used to secure the mesh to the baseplate, but it does not exclude placing the coating over the entire surface or the mesh being devoid of the coating.

Applicants respectfully submit that the Examiner is misreading the claims. Firstly, independent claims 21 and 43 recite "a vertebral body contact element having a perimeter and a central portion, wherein only said perimeter of said vertebral body contact element is disposed within said groove." This limitation is clearly shown in at least Figs. 1b and 1c of the drawings wherein only a perimeter of the vertebral body contact element 14 is shown disposed within groove 13 of base plate 10.

Secondly, independent claim 21 recites "a coating being disposed within said groove." Applicants would like to point Examiner to paragraph [0110] of the specification stating:

"Each baseplate 10, 30 further comprised at least a lateral ring 16, 36 that is osteoconductive, which may be, for example, a sprayed deposition layer, or an adhesive applied beaded metal layer, or another suitable porous coating. This porous ring 16, 36 permits the long-term ingrowth of vertebral bone into the baseplate 10, 30, thus permanently securing the prosthesis within the intervertebral space. *It shall be understood that this porous layer 16, 36 may extend beneath the domed mesh 14, 34 as well, but is more importantly applied to the lateral rim of the outwardly facing surface 12, 32 of the baseplate 10, 30 that seats directly against the vertebral body. (emphasis added).*

Therefore, there is clear support for the limitation of a coating being disposed within the groove of a base plate in the present application in at least paragraph [0110]. Thirdly, independent claim 21 goes onto recite after "a coating being disposed within said groove" that the coating disposed within the groove is "in contact with only said perimeter of said vertebral body contact element." Once again, this is clearly shown in at least Figs. 1b and 1c of the drawings wherein only a perimeter of the vertebral body contact element 14 is shown disposed within groove 13 of base plate 10 and therefore the coating disposed within the groove is "in contact with only said perimeter of said vertebral body contact element" as recited in claim 21. For the foregoing reasons, Applicants respectfully believe the objection to the specification should be withdrawn.

The Examiner rejected claims 21-30, 41, 42, 44-46 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner asserted that paragraph [0179] of Applicants' disclosure describes the coating

as burying the mesh to secure it to the baseplate. The Examiner also asserted that paragraph [0181] of Applicants' disclosure states that the coating is on the mesh. Therefore, the examiner contended that there is no support for the coating to be only on the mesh in the groove and not on the central portion of the mesh.

As described above, there are no recitations in the independent claims for "the coating to be only on the mesh in the groove and not on the central portion of the mesh" as asserted by the Examiner. Further, there is no such recitation in any of the pending claims depending therefrom, namely, claims 22-30, 41, and 47. Further, Applicants have canceled claims 42 and 44-46, rendering the rejection to those claims moot. For the foregoing reasons, Applicants respectfully believe the 35 U.S.C. 112, first paragraph, rejection of the pending claims is overcome and should be withdrawn.

The Examiner rejected claims 21-24, 26-30, and 41-47 under 35 U.S.C. § 103(a) as begin unpatentable over U.S. Patent No. 5,370,697 to *Baumgartner* ("Baumgartner") in view of U.S. Patent No. 4,759,769 to *Hedman et al.* ("Hedman") in view of U.S. Patent No. 5,926,685 to *Krebs et al.* ("Krebs") and U.S. Pat. No 6,162,252 to *Kuras et al.* ("Kuras"). The Examiner asserted that FIG. 5 of Baumgartner shows a vertebral contact element 44 having a resting shape of a dome convexly extending from orthopedic device 2. The Examiner further asserted that Baumgartner discloses that the contact element is a wire mesh that is porous. However, the Examiner acknowledges that Baumgartner fails to disclose the outer surface of a baseplate having a groove. Further, the Examiner asserted that Hedman teaches a recess or grove 34, 52 used in the plate surfaces to secure or retain the resilient spring elements thereon and Krebs teaches a coating or binder used to secure a metal mesh to the

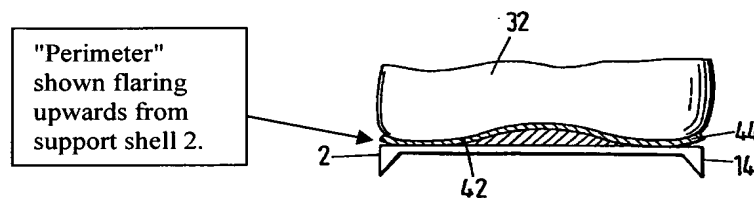
outer surface of the implant and Kuras teaches a perimeter and groove 56 that has a coating 96 only disposed with its region.

The Examiner contended it would have been obvious to one of ordinary skill in the art to incorporate a groove in the exterior surface to retain a compressible member therein as taught by Hedman and utilize a coating or binder held in a groove as taught by Krebs and Kuras in the implant of Baumgartner such that together, the incorporation of these exterior surface modifications secure the mesh to the implant stronger and eliminates any sliding or dislodgment of the mesh from the baseplates.

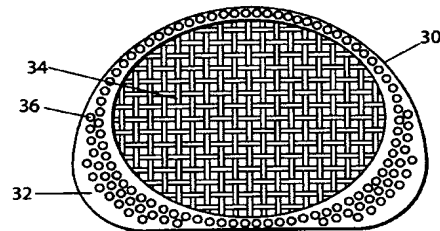
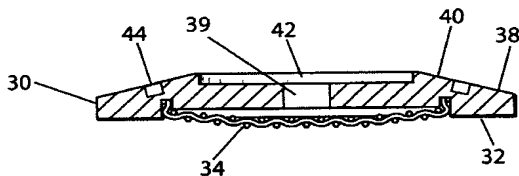
Applicants respectfully assert that the Examiner has not made a prima facie case of obviousness because the cited references do not disclose or suggest each and every limitation of the claim invention. Independent claims 21 and 43 are not obvious over Baumgartner in view of Hedman in view of Krebs and Kuras because the cited references neither teach nor suggest an artificial intervertebral device including a spacer body, having a first exterior surface and a second exterior surface, at least one of the first exterior surface and the second exterior surface adapted for engaging a vertebral body, at least one of the first exterior surface and the second exterior surface having a groove disposed therein, and "a vertebral body contact element having a perimeter and a central portion, wherein only said perimeter of said vertebral contact element is disposed within said groove to thereby aid in securely attaching said vertebral body contact element to said first exterior surface or said second exterior surface."

Applicants submit that one skilled in the art would not look to Baumgartner for retaining a compressible member in a groove. The structure of the vertebral body contact element recited in independent claims 21 and 43 is completely different than what the Examiner refers to as a vertebral body contact

element 44 in Baumgartner. The only disclosure relating to the structure of element 44 in the entire specification of Baumgartner is that shown in Fig. 5 and the term "metal lattice." See col.3, 11.54-55. Further, Fig. 5 (reprinted below) of Baumgartner shows element 44 extending over the entire surface of support 2 and also shows the perimeter of element 44 flaring upwards. These are both reasons why there is no groove in Baumgartner and why one skilled in the art would not look to Baumgartner for retaining a compressible member in a groove.



In contrast, the perimeter of the vertebral body contact element of the present invention as shown in Figs. 1e-1f of the present application (reprinted below) is the only portion of the vertebral body contact element that is disposed within the groove of a baseplate.



Applicants would like to point the Examiner to a section of paragraph [0109] of the originally filed specification to provide support for the structure of the vertebral body contact element as claimed. Paragraph [0109] states:

"Further, each baseplate 10,30 comprises a vertebral body contact element (e.g., a convex mesh 14,34, preferably oval in shape) that is attached to the outwardly facing surface 12,32 of the baseplate 10,30 to provide a vertebral body contact surface. The mesh 14,34 is secured at its perimeter to the outwardly facing surface 12,32

of the baseplate 10,30. The mesh 14,34 is domed in its initial undeflected conformation, but deflects as necessary during insertion of the artificial disc between vertebral bodies, and, once the artificial disc is seated between the vertebral bodies, deforms as necessary under anatomical loads to reshape itself to the concave surface of the vertebral endplate. This affords the baseplate 10,30 having the mesh 14,34 substantially superior gripping and holding strength upon initial implantation as compared with other artificial disc products." (emphasis added).

The above paragraph describes why only the perimeter of the vertebral body contact element is secured to the outwardly-facing surface of the baseplate. As described above, "The mesh 14,34 is domed in its initial undeflected conformation, but deflects as necessary during insertion of the artificial disc between vertebral bodies." In contrast, *Baumgartner* teaches away from such a structure. *Baumgartner* teaches that element 44 is "adapted to vertebral surface 42, into which osseous tissue of the vertebrae fuses and thus produces a very good and long-lasting connection with the intervertebral disk member." See col.3, ll.55-59. There is no indication here that element 44 has an initial undeflected portion wherein only a perimeter of the element would benefit from being secured in a groove. In fact, *Baumgartner* teaches away from utilizing a groove configuration. The specification of *Baumgartner* seems to only suggest that the lattice naturally conforms to adjacent vertebrae 32 by allowing its outer edges to flare upwardly. Therefore, there is no reason to place element 44 in a groove.

For the foregoing reasons, Applicants submit that independent claims 21 and 43 are not obvious over *Baumgartner* in view of *Hedman* in view of *Krebs* and *Kuras*. Claims 22-30 depending from independent claim 21 and claim 47 depending from

independent claim 43 are not obvious, *inter alia*, by virtue of their dependence from independent claims 21 and 43. A dependent claim is necessarily narrower than an independent claim from which it properly depends.

Further, the Examiner rejected claims 21 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Baumgartner in view of Hedman and U.S. Pat. No. 4,969,907 to Koch *et al.* ("Koch") and Kuras. The Examiner asserted that Baumgartner as modified by Hedman fails to disclose a coating such as plasma spray for securing a metal to an implant surface. The Examiner asserted that it would have been obvious for one skilled in the art to incorporate a groove in the exterior surface to retain a compressible member therein as taught by Hedman and utilize a coating or binder as taught by Krebs and only in a groove region as taught by Kuras in the implant of Baumgartner such that together, the incorporation of these exterior surface modifications secure the mesh to the implant stronger and eliminates any sliding or dislodgment of the mesh and coating from the baseplates.

As stated above independent claim 21 includes recitations that are neither disclosed nor suggested in Baumgartner and Hedman. As stated above, Baumgartner cannot be combined with Hedman to provide an artificial intervertebral device including a baseplate having a groove, and a vertebral body contact element having a perimeter and a central portion, wherein only the perimeter of the vertebral body contact element is disposed within the groove. Further, Baumgartner cannot be combined with either Koch or Kuras to cure this deficiency. Therefore, claim 21 is not rendered obvious by Baumgartner in view of Hedman and Koch and Kuras. Claim 25 is unobvious, *inter alia*, by virtue of its dependence from independent claims 21.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone Applicants' attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 502615 therefor.

Dated: February 25, 2008

Respectfully submitted,

By 

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